SEQUENCE LISTING

<110> Reed, Jennifer

<120> RECOMBINANT IL-9 ANTIBODIES AND USES THEREOF

<130> 10271-112-999

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<150> 60/462,259
<151> 2003-04-11

<150> 60/477,797
<151> 2003-06-10

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<170> PatentIn version 3.2

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<400> 1

Gly Tyr Thr Phe Thr Gly Tyr Trp Ile Glu
1 5 10

<210> 2
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Glu Ile Leu Pro Gly Ser Gly Thr Thr Asn Tyr Asn Glu Lys Phe Lys
1 5 10 15

Gly

<210> 3
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<213> Homo sapiens

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Ala Asp Tyr Tyr Gly Ser Asp Tyr Val Lys Phe Asp Tyr
1 5 10

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<213> Homo sapiens

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Lys Ala Ser Gln His Val Gly Thr His Val Thr
1 5 10

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Ser Thr Ser Tyr Arg Tyr Ser
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Gln His Phe Tyr Ser Tyr Pro Leu Thr
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<400> 7

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr Trp
20 25 30

Ile Glu Trp Val Arg Gln Ala Pro Gly Gln Leu Glu Trp Met Gly Glu
35 40 45

Ile Leu Pro Gly Ser Thr Thr Asn Tyr Asn Glu Lys Phe Lys Gly Arg
50 55 60

Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr Met Glu Leu
65 70 75 80

Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Ala
85 90 95

```
Asp Tyr Tyr Gly Ser Asp Tyr Val Lys Phe Asp Tyr Trp Gly Gln Gly
            100                 105                 110

Thr Leu Val Thr Ser Ser
        115
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<210> 8
<211> 107
<212> PRT
<213> Homo sapiens

<400> 8

```
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1               5                   10                  15

Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln His Val Gly Thr His
            20                  25                  30

Val Thr Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45

Tyr Ser Thr Ser Tyr Arg Tyr Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln His Phe Tyr Ser Tyr Pro Leu
                85                  90                  95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 9
<211> 124
<212> PRT
<213> Homo sapiens

<400> 9

```
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1               5                   10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
            20                  25                  30

Trp Ile Glu Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45
```

Gly Glu Trp Leu Pro Gly Ser Gly Thr Thr Asn Tyr Asn Asn Glu Lys
50 55 60

Phe Lys Gly Arg Val Thr Met Thr Arg Asp Thr Ser Ser Thr Ser Thr
65 70 75 80

Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr
85 90 95

Tyr Cys Ala Arg Ala Asp Tyr Tyr Gly Ser Asp Tyr Val Lys Phe Asp
100 105 110

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 10
<211> 17
<212> PRT
<213> Homo sapiens

<400> 10

Glu Trp Leu Pro Gly Ser Gly Thr Thr Asn Tyr Asn Glu Lys Phe Lys
1 5 10 15

Gly

<210> 11
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<213> Homo sapiens

<400> 11

Gly Tyr Thr Phe Thr Tyr Tyr Trp Ile Glu
1 5 10

<210> 12
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<213> Homo sapiens

<400> 12

Ala Asp Tyr Tyr Gly Ser Asp His Val Lys Phe Asp Tyr
1 5 10

<210> 13
<211> 11
<212> PRT

<213> Homo sapiens

<400> 13

Leu Ala Ser Gln His Val Gly Thr His Val Thr
1 5 10

<210> 14
<211> 7
<212> PRT
<213> Homo sapiens

<400> 14

Gly Thr Ser Tyr Arg Tyr Ser
1 5

<210> 15
<211> 120
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<213> Homo sapiens

<400> 15

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Tyr Tyr
20 25 30

Trp Ile Glu Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Glu Trp Leu Pro Gly Ser Gly Thr Thr Asn Tyr Asn Glu Lys Phe Lys
50 55 60

Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr Met
65 70 75 80

Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala
85 90 95

Arg Ala Asp Tyr Tyr Gly Ser Asp His Val Lys Phe Asp Tyr Trp Gly
100 105 110

Gln Thr Leu Val Thr Val Ser Ser
115 120

<210> 16
<211> 107
<212> PRT

<213> Homo sapiens

<400> 16

```
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1               5                  10                  15

Asp Arg Val Thr Ile Thr Cys Leu Ala Ser Gln His Val Gly Thr His
            20                  25                  30

Val Thr Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45

Tyr Gly Thr Ser Tyr Arg Tyr Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln His Phe Tyr Asp Tyr Pro Leu
                85                  90                  95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 17
<211> 120
<212> PRT
<213> Homo sapiens

<400> 17

```
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1               5                  10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
            20                  25                  30

Trp Ile Glu Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45

Gly Glu Trp Leu Pro Gly Ser Gly Thr Thr Asn Tyr Asn Glu Lys Phe
    50                  55                  60

Lys Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
65                  70                  75                  80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
```

```
Ala Arg Ala Asp Tyr Tyr Gly Ser Asp His Lys Phe Asp Tyr Trp Gly
            100                 105                 110

Gln Gly Thr Leu Thr Val Ser Ser
        115                 120


<210>  18
<211>  107
<212>  PRT
<213>  Homo sapiens

<400>  18

Asp Gln Ile Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1               5                   10                  15

Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln His Val Gly Thr His
            20                  25                  30

Val Thr Trp Thr Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu
        35                  40                  45

Ile Tyr Gly Thr Ser Tyr Arg Tyr Ser Gly Val Pro Arg Phe Ser Gly
    50                  55                  60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln His Phe Tyr Glu Tyr Pro Leu
                85                  90                  95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
            100                 105


<210>  19
<211>  10
<212>  PRT
<213>  Homo sapiens

<400>  19

Gly Gly Thr Phe Ser Gly Tyr Trp Ile Glu
1               5                   10


<210>  20
<211>  9
<212>  PRT
<213>  Homo sapiens
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<400> 20

Gln Gln Phe Tyr Glu Tyr Pro Leu Thr
1 5

<210> 21
<211> 119
<212> PRT
<213> Homo sapiens

<400> 21

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15

Ser Val Lys Ser Cys Lys Ala Gly Gly Thr Phe Ser Gly Tyr Trp Ile
20 25 30

Glu Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Glu
35 40 45

Ile Leu Pro Gly Ser Gly Thr Thr Asn Tyr Asn Glu Lys Phe Lys Gly
50 55 60

Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr Met Glu
65 70 75 80

Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg
85 90 95

Ala Asp Tyr Tyr Gly Ser Asp Tyr Val Lys Phe Asp Tyr Trp Gly Gln
100 105 110

Thr Leu Val Thr Val Ser Ser
115

<210> 22
<211> 107
<212> PRT
<213> Homo sapiens

<400> 22

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Val Gly Asp
1 5 10 15

Arg Val Thr Ile Thr Cys Lys Ala Ser Gln His Val Gly Thr His Val
20 25 30

Thr Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Lys Leu Leu Ile

```
        35                  40                  45

Tyr Ser Thr Ser Tyr Arg Tyr Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Phe Tyr Glu Pro Leu Thr
                85                  90                  95

Gly Phe Gly Gly Gly Thr Lys Val Ile Glu Lys
            100                 105
```

<210> 23
<211> 121
<212> PRT
<213> Homo sapiens

<400> 23

```
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1               5                   10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Gly Tyr
            20                  25                  30

Trp Ile Glu Glu Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45

Gly Glu Ile Leu Pro Gly Ser Gly Thr Thr Asn Pro Asn Glu Lys Phe
    50                  55                  60

Lys Gly Arg Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr Met
65                  70                  75                  80

Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala
                85                  90                  95

Arg Ala Asp Tyr Tyr Gly Ser Asp Tyr Val Lys Phe Asp Tyr Trp Gly
            100                 105                 110

Gln Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

<210> 24
<211> 107
<212> PRT

<213> Homo sapiens

<400> 24

```
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1               5                  10                  15

Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln His Val Gly Thr His
            20                  25                  30

Val Thr Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45

Tyr Ser Thr Ser Tyr Arg Tyr Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80

Glu Asp Phe Ala Thr Tyr Tyr Tyr Cys Gln Gln Phe Tyr Glu Pro Leu
                85                  90                  95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 25
<211> 107
<212> PRT
<213> Homo sapiens

<400> 25

```
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1               5                  10                  15

Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Ser Gln His Val Gly Thr
            20                  25                  30

His Val Thr Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu
        35                  40                  45

Ile Tyr Gly Thr Ser Tyr Arg Tyr Ser Gly Val Pro Ser Arg Phe Ser
    50                  55                  60

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln
65                  70                  75                  80

Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Phe Tyr Glu Tyr Pro
                85                  90                  95
```

```
Leu Thr Phe Gly Gly Gly Thr Val Glu Ile Lys
            100                 105


<210>  26
<211>  10
<212>  PRT
<213>  Homo sapiens

<400>  26

Gly Gly Thr Phe Ser Tyr Tyr Trp Ile Glu
1               5                   10


<210>  27
<211>  62
<212>  PRT
<213>  Homo sapiens

<400>  27

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1               5                   10                  15


Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Tyr Tyr
            20                  25                  30


Trp Ile Glu Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45


Gly Glu Ile Leu Pro Gly Ser Gly Thr Thr Asn Pro Asn Glu
    50                  55                  60


<210>  28
<211>  107
<212>  PRT
<213>  Homo sapiens

<400>  28

Asp Ile Gln Met Met Thr Gln Ser Pro Ser Ser Leu Ala Ser Val Gly
1               5                   10                  15


Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln His Val Ile Thr His
            20                  25                  30


Val Thr Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45


Tyr Gly Thr Ser Tyr Ser Tyr Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
```

```
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Phe Tyr Glu Tyr Pro Leu
                85                  90                  95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 29
<211> 122
<212> PRT
<213> Homo sapiens

<400> 29

```
Gln Val Gln Leu Val Gln Ser Asx Ala Glu Val Lys Lys Pro Gly Ser
1               5                   10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Gly Tyr
            20                  25                  30

Trp Ile Glu Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45

Gly Glu Ile Leu Pro Gly Ser Gly Thr Thr Asn Pro Asn Glu Lys Phe
    50                  55                  60

Lys Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65                  70                  75                  80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Ala Arg Ala Asp Tyr Tyr Gly Ser Asp Tyr Val Lys Phe Asp Tyr Trp
            100                 105                 110

Gly Gln Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

<210> 30
<211> 105
<212> PRT
<213> Homo sapiens

<400> 30

```
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
```

```
1               5                   10                  15

Asp Arg Thr Ile Thr Cys Lys Ala Ser Gln His Val Gly Thr His Val
            20                  25                  30

Thr Trp Tyr Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Gly
        35                  40                  45

Thr Ser Tyr Arg Tyr Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
    50                  55                  60

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
65                  70                  75                  80

Phe Ala Thr Tyr Tyr Cys Gln Gln Phe Tyr Glu Tyr Pro Leu Thr Phe
                85                  90                  95

Gly Gly Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 31
<211> 127
<212> PRT
<213> Homo sapiens

<400> 31

```
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1               5                   10                  15

Ser Val Lys Lys Pro Gly Ser Ser Val Lys Ser Cys Lys Ala Ser Gly
            20                  25                  30

Gly Thr Phe Ser Tyr Tyr Trp Ile Glu Trp Val Arg Gln Ala Pro Gly
        35                  40                  45

Gln Gly Leu Glu Trp Met Gly Glu Ile Leu Pro Gly Ser Gly Thr Thr
    50                  55                  60

Asn Pro His Glu Lys Phe Lys Gly Arg Val Thr Ile Thr Ala Asp Glu
65                  70                  75                  80

Ser Thr Ser Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp
                85                  90                  95

Thr Ala Val Tyr Tyr Cys Ala Arg Ala Asp Tyr Tyr Gly Ser Asp Tyr
            100                 105                 110
```

```
Val Lys Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Ser Ser
        115                 120                 125


<210>  32
<211>  107
<212>  PRT
<213>  Homo sapiens

<400>  32

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1               5                   10                  15


Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln His Val Ile Thr His
            20                  25                  30


Val Thr Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45


Tyr Gly Thr Ser Tyr Arg Tyr Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60


Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80


Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Phe Tyr Glu Tyr Pro Leu
                85                  90                  95


Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
            100                 105


<210>  33
<211>  25
<212>  PRT
<213>  Homo sapiens

<400>  33

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1               5                   10                  15


Ser Val Lys Val Ser Cys Lys Ala Ser
            20                  25


<210>  34
<211>  14
<212>  PRT
<213>  Homo sapiens

<400>  34
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```
Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly
1               5                   10

<210>  35
<211>  32
<212>  PRT
<213>  Homo sapiens

<400>  35

Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr Met Glu
1               5                   10                  15

Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg
            20                  25                  30

<210>  36
<211>  11
<212>  PRT
<213>  Homo sapiens

<400>  36

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
1               5                   10

<210>  37
<211>  25
<212>  PRT
<213>  Homo sapiens

<400>  37

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1               5                   10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser
            20                  25

<210>  38
<211>  32
<212>  PRT
<213>  Homo sapiens

<400>  38

Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr Met Glu
1               5                   10                  15

Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg
            20                  25                  30
```

<210> 39
<211> 23
<212> PRT
<213> Homo sapiens

<400> 39

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys
20

<210> 40
<211> 15
<212> PRT
<213> Homo sapiens

<400> 40

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
1 5 10 15

<210> 41
<211> 32
<212> PRT
<213> Homo sapiens

<400> 41

Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys
20 25 30

<210> 42
<211> 10
<212> PRT
<213> Homo sapiens

<400> 42

Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
1 5 10

<210> 43
<211> 366
<212> DNA
<213> Homo sapiens

<400> 43
caggtgcagc tggtgcagtc tggggctgag gtgaagaagc ctgggtcctc agtgaaggtt 60

tcctgcaagg catctggagg caccttcagc tattactgga tagagtgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggagag attttacctg gaagtggtac tactaacccg 180

aatgagaagt tcaagggcag agtcaccatt accgcggacg aatccacgag cacagcctac 240

atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagcggat 300

tactacggta gtgattacgt caagtttgac tactggggcc aaggaaccct ggtcaccgtc 360

tcctca 366

<210> 44
<211> 30
<212> DNA
<213> Homo sapiens

<400> 44
ggaggcacct tcagctatta ctggatagag 30

<210> 45
<211> 51
<212> DNA
<213> Homo sapiens

<400> 45
gagattttac ctggaagtgg tactactaac ccgaatgaga agttcaaggg c 51

<210> 46
<211> 39
<212> DNA
<213> Homo sapiens

<400> 46
gcggattact acggtagtga ttacgtcaag tttgactac 39

<210> 47
<211> 321
<212> DNA
<213> Homo sapiens

<400> 47
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60

atcacttgca aggcaagtca gcatgtgatt actcatgtaa cctggtatca gcagaaacca 120

gggaaagccc ctaagctcct gatctatggg acatcctaca gctacagtgg ggtcccatca 180

aggttcagtg gcagtggata tgggacagat ttcactctca ccatcagcag tctgcaacct 240

gaagattttg caacttatta ctgtcagcaa ttttacgagt atcctctcac gttcggcgga 300

gggaccaagg tggagatcaa a 321

<210> 48
<211> 33
<212> DNA

<213> Homo sapiens

<400> 48
aaggcaagtc agcatgtgat tactcatgta acc 33

<210> 49
<211> 15
<212> DNA
<213> Homo sapiens

<400> 49
gggacatcct acagc 15

<210> 50
<211> 27
<212> DNA
<213> Homo sapiens

<400> 50
cagcaatttt acgagtatcc tctcacg 27

<210> 51
<211> 591
<212> DNA
<213> Homo sapiens

<400> 51
ccgctgtcaa gatgcttctg gccatggtcc ttacctctgc cctgctcctg tgctccgtgg 60

caggccaggg gtgtccaacc ttggcgggga tcctggacat caacttcctc atcaacaaga 120

tgcaggaaga tccagcttcc aagtgccact gcagtgctaa tgtgaccagt tgtctctgtt 180

tgggcattcc ctctgacaac tgcaccagac catgcttcag tgagagactg tctcagatga 240

ccaataccac catgcaaaca agatacccac tgattttcag tcgggtgaaa aaatcagttg 300

aagtactaaa gaacaacaag tgtccatatt tttcctgtga acagccatgc aaccaaacca 360

cggcaggcaa cgcgctgaca tttctgaaga gtcttctgga aattttccag aaagaaaaga 420

tgagagggat gagaggcaag atatgaagat gaaatattat ttatcctatt tattaaattt 480

aaaaagcttt ctctttaagt tgctacaatt taaaaatcaa gtaagctact ctaaatcagt 540

atcagttgtg attatttgtt taacattgta tgtctttatt ttgaaataaa t 591

<210> 52
<211> 144
<212> PRT
<213> Homo sapiens

<400> 52

Met Leu Leu Ala Met Val Leu Thr Ser Ala Leu Leu Leu Cys Ser Val
1 5 10 15

```
Ala Gly Gln Gly Cys Pro Thr Leu Ala Gly Ile Leu Asp Ile Asn Phe
            20                  25                  30

Leu Ile Asn Lys Met Gln Glu Asp Pro Ala Ser Lys Cys His Cys Ser
        35                  40                  45

Ala Asn Val Thr Ser Cys Leu Cys Leu Gly Ile Pro Ser Asp Asn Cys
    50                  55                  60

Thr Arg Pro Cys Phe Ser Glu Arg Leu Ser Gln Met Thr Asn Thr Thr
65                  70                  75                  80

Met Gln Thr Arg Tyr Pro Leu Ile Phe Ser Arg Val Lys Lys Ser Val
                85                  90                  95

Glu Val Leu Lys Asn Asn Lys Cys Pro Tyr Phe Ser Cys Glu Gln Pro
            100                 105                 110

Cys Asn Gln Thr Thr Ala Gly Asn Ala Leu Thr Phe Leu Lys Ser Leu
        115                 120                 125

Leu Glu Ile Phe Gln Lys Glu Lys Met Arg Gly Met Arg Gly Lys Ile
    130                 135                 140
```

<210> 53
<211> 808
<212> PRT
<213> Homo sapiens

<400> 53

```
Met Ala Glu Leu Leu Ala Ser Ala Gly Ser Ala Cys Ser Trp Asp Phe
1               5                   10                  15

Pro Arg Ala Pro Pro Ser Phe Pro Pro Pro Ala Ala Ser Arg Gly Gly
            20                  25                  30

Leu Gly Gly Thr Arg Ser Phe Arg Pro His Arg Gly Ala Glu Ser Pro
        35                  40                  45

Arg Pro Gly Arg Asp Arg Asp Gly Val Arg Val Pro Met Ala Ser Ser
    50                  55                  60

Arg Cys Pro Ala Pro Arg Gly Cys Arg Cys Leu Pro Gly Ala Ser Leu
65                  70                  75                  80

Ala Trp Leu Gly Thr Val Leu Leu Leu Leu Ala Asp Trp Val Leu Leu
```

```
                85                  90                  95

Arg Thr Ala Leu Pro Arg Ile Phe Ser Leu Leu Val Pro Thr Ala Leu
            100                 105                 110

Pro Leu Leu Arg Val Trp Ala Val Gly Leu Ser Arg Trp Ala Val Leu
        115                 120                 125

Trp Leu Gly Ala Cys Gly Val Leu Arg Ala Thr Val Gly Ser Lys Ser
    130                 135                 140

Glu Asn Ala Gly Ala Gln Gly Trp Leu Ala Ala Leu Lys Pro Leu Ala
145                 150                 155                 160

Ala Ala Leu Gly Leu Ala Leu Pro Gly Leu Ala Leu Phe Arg Glu Leu
                165                 170                 175

Ile Ser Trp Gly Ala Pro Gly Ser Ala Asp Ser Thr Arg Leu Leu His
            180                 185                 190

Trp Gly Ser His Pro Thr Ala Phe Val Val Ser Tyr Ala Ala Ala Leu
        195                 200                 205

Pro Ala Ala Ala Leu Trp His Lys Leu Gly Ser Leu Trp Val Pro Gly
    210                 215                 220

Gly Gln Gly Gly Ser Gly Asn Pro Val Arg Arg Leu Leu Gly Cys Leu
225                 230                 235                 240

Gly Ser Glu Thr Arg Arg Leu Ser Leu Phe Leu Val Leu Val Val Leu
                245                 250                 255

Ser Ser Leu Gly Glu Met Ala Ile Pro Phe Phe Thr Gly Arg Leu Thr
            260                 265                 270

Asp Trp Ile Leu Gln Asp Gly Ser Ala Asp Thr Phe Thr Arg Asn Leu
        275                 280                 285

Thr Leu Met Ser Ile Leu Thr Ile Ala Ser Ala Val Leu Glu Phe Val
    290                 295                 300

Gly Asp Gly Ile Tyr Asn Asn Thr Met Gly His Val His Ser His Leu
305                 310                 315                 320

Gln Gly Glu Val Phe Gly Ala Val Leu Arg Gln Glu Thr Glu Phe Phe
                325                 330                 335
```

```
Gln Gln Asn Gln Thr Gly Asn Ile Met Ser Arg Val Thr Glu Asp Thr
            340                 345                 350

Ser Thr Leu Ser Asp Ser Leu Ser Glu Asn Leu Ser Leu Phe Leu Trp
        355                 360                 365

Tyr Leu Val Arg Gly Leu Cys Leu Leu Gly Ile Met Leu Trp Gly Ser
    370                 375                 380

Val Ser Leu Thr Met Val Thr Leu Ile Thr Leu Pro Leu Leu Phe Leu
385                 390                 395                 400

Leu Pro Lys Lys Val Gly Lys Trp Tyr Gln Leu Leu Glu Val Gln Val
                405                 410                 415

Arg Glu Ser Leu Ala Lys Ser Ser Gln Val Ala Ile Glu Ala Leu Ser
            420                 425                 430

Ala Met Pro Thr Val Arg Ser Phe Ala Asn Glu Glu Gly Glu Ala Gln
        435                 440                 445

Lys Phe Arg Glu Lys Leu Gln Glu Ile Lys Thr Leu Asn Gln Lys Glu
    450                 455                 460

Ala Val Ala Tyr Ala Val Asn Ser Trp Thr Thr Ser Ile Ser Gly Met
465                 470                 475                 480

Leu Leu Lys Val Gly Ile Leu Tyr Ile Gly Gly Gln Leu Val Thr Ser
                485                 490                 495

Gly Ala Val Ser Ser Gly Asn Leu Val Thr Phe Val Leu Tyr Gln Met
            500                 505                 510

Gln Phe Thr Gln Ala Val Glu Val Leu Leu Ser Ile Tyr Pro Arg Val
        515                 520                 525

Gln Lys Ala Val Gly Ser Ser Glu Lys Ile Phe Glu Tyr Leu Asp Arg
    530                 535                 540

Thr Pro Arg Cys Pro Pro Ser Gly Leu Leu Thr Pro Leu His Leu Glu
545                 550                 555                 560

Gly Leu Val Gln Phe Gln Asp Val Ser Phe Ala Tyr Pro Asn Arg Pro
                565                 570                 575
```

```
Asp Val Leu Val Leu Gln Gly Leu Thr Phe Thr Leu Arg Pro Gly Glu
            580                 585                 590

Val Thr Ala Leu Val Gly Pro Asn Gly Ser Gly Lys Ser Thr Val Ala
        595                 600                 605

Ala Leu Leu Gln Asn Leu Tyr Gln Pro Thr Gly Gly Gln Leu Leu Leu
    610                 615                 620

Asp Gly Lys Pro Leu Pro Gln Tyr Glu His Arg Tyr Leu His Arg Gln
625                 630                 635                 640

Val Ala Ala Val Gly Gln Glu Pro Gln Val Phe Gly Arg Ser Leu Gln
                645                 650                 655

Glu Asn Ile Ala Tyr Gly Leu Thr Gln Lys Pro Thr Met Glu Glu Ile
            660                 665                 670

Thr Ala Ala Ala Val Lys Ser Gly Ala His Ser Phe Ile Ser Gly Leu
        675                 680                 685

Pro Gln Gly Tyr Asp Thr Glu Val Asp Glu Ala Gly Ser Gln Leu Ser
    690                 695                 700

Gly Gly Gln Arg Gln Ala Val Ala Leu Ala Arg Ala Leu Ile Arg Lys
705                 710                 715                 720

Pro Cys Val Leu Ile Leu Asp Asp Ala Thr Ser Ala Leu Asp Ala Asn
                725                 730                 735

Ser Gln Leu Gln Val Glu Gln Leu Leu Tyr Glu Ser Pro Glu Arg Tyr
            740                 745                 750

Ser Arg Ser Val Leu Leu Ile Thr Gln His Leu Ser Leu Val Glu Gln
        755                 760                 765

Ala Asp His Ile Leu Phe Leu Glu Gly Gly Ala Ile Arg Glu Gly Gly
    770                 775                 780

Thr His Gln Gln Leu Met Glu Lys Lys Gly Cys Tyr Trp Ala Met Val
785                 790                 795                 800

Gln Ala Pro Ala Asp Ala Pro Glu
                805
```

<210> 54
<211> 140
<212> PRT
<213> Homo sapiens

<400> 54

```
Met Val Leu Thr Ser Ala Leu Leu Leu Cys Ser Val Ala Gly Gln Gly
1               5                  10                  15

Cys Pro Thr Leu Ala Gly Ile Leu Asp Ile Asn Phe Leu Ile Asn Lys
            20                  25                  30

Met Gln Glu Asp Pro Ala Ser Lys Cys His Cys Ser Ala Asn Val Thr
        35                  40                  45

Ser Cys Leu Cys Leu Gly Ile Pro Ser Asp Asn Cys Thr Arg Pro Cys
    50                  55                  60

Phe Ser Glu Arg Leu Ser Gln Met Thr Asn Thr Thr Met Gln Thr Arg
65              70                  75                  80

Tyr Pro Leu Ile Phe Ser Arg Val Lys Lys Ser Val Glu Val Leu Lys
                85                  90                  95

Asn Asn Lys Cys Pro Tyr Phe Ser Cys Glu Gln Pro Cys Asn Gln Thr
            100                 105                 110

Thr Ala Gly Asn Ala Leu Thr Phe Leu Lys Ser Leu Leu Glu Ile Phe
        115                 120                 125

Gln Lys Glu Lys Met Arg Gly Met Arg Gly Lys Ile
    130                 135                 140
```

<210> 55
<211> 2171
<212> DNA
<213> Homo sapiens

<400> 55

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agcagctctg taatgcgctt gtggtttcag atgtgggcgg cctgtgtgaa cctgtcgtgc     60

aaagctcacg tcaccaactg ctgcagttat ctcctgaatc aggctgaggg tctttgctgt    120

gcacccagag atagttgggt gacaaatcac ctccaggttg gggatgcctc agacttgtga    180

tgggactggg cagatgcatc tgggaaggct ggaccttgga gagtgaggcc ctgaggcgag    240

acatgggcac ctggctcctg gcctgcatct gcatctgcac ctgtgtctgc ttgggagtct    300

ctgtcacagg ggaaggacaa gggccaaggt ctagaacctt cacctgcctc accaacaaca    360
```

ttctcaggat cgattgccac tggtctgccc cagagctggg acagggctcc agcccctggc 420

tcctcttcac cagcaaccag gctcctggcg gcacacataa gtgcatcttg cggggcagtg 480

agtgcaccgt cgtgctgcca cctgaggcag tgctcgtgcc atctgacaat ttcaccatca 540

ctttccacca ctgcatgtct gggagggagc aggtcagcct ggtggacccg gagtacctgc 600

cccggagaca cgttaagctg gacccgccct ctgacttgca gagcaacatc agttctggcc 660

actgcatcct gacctggagc atcagtcctg ccttggagcc aatgaccaca cttctcagct 720

atgagctggc cttcaagaag caggaagagg cctgggagca ggcccagcac agggatcaca 780

ttgtcggggt gacctggctt atacttgaag cctttgagct ggaccctggc tttatccatg 840

aggccaggct gcgtgtccag atggccacac tggaggatga tgtggtagag gaggagcgtt 900

atacaggcca gtggagtgag tggagccagc ctgtgtgctt ccaggctccc cagagacaag 960

gccctctgat cccaccctgg gggtggccag gcaacaccct tgttgctgtg tccatctttc 1020

tcctgctgac tggcccgacc tacctcctgt tcaagctgtc gcccagggtg aagagaatct 1080

tctaccagaa cgtgccctct ccagcgatgt tcttccagcc cctctacagt gtacacaatg 1140

ggaacttcca gacttggatg ggggcccacg gggccggtgt gctgttgagc caggactgtg 1200

ctggcacccc acagggagcc ttggagccct gcgtccagga ggccactgca ctgctcactt 1260

gtggcccagc gcgtccttgg aaatctgtgg ccctggagga ggaacaggag ggccctggga 1320

ccaggctccc ggggaacctg agctcagagg atgtgctgcc agcagggtgt acggagtgga 1380

gggtacagac gcttgcctat ctgccacagg aggactgggc ccccacgtcc ctgactaggc 1440

cggctccccc agactcagag ggcagcagga gcagcagcag cagcagcagc agcaacaaca 1500

acaactactg tgccttgggc tgctatgggg gatggcacct ctcagccctc ccaggaaaca 1560

cacagagctc tgggcccatc ccagccctgg cctgtggcct ttcttgtgac catcagggcc 1620

tggagaccca gcaaggagtt gcctgggtgc tggctggtca ctgccagagg cctgggctgc 1680

atgaggacct ccagggcatg ttgctccctt ctgtcctcag caaggctcgg tcctggacat 1740

tctaggtccc tgactcgcca gatgcatcat gtccattttg ggaaaatgga ctgaagtttc 1800

tggagccctt gtctgagact gaacctcctg agaaggggcc cctagcagcg gtcagaggtc 1860

ctgtctggat ggaggctgga ggctcccccc tcaacccctc tgctcagtgc ctgtggggag 1920

cagcctctac cctcagcatc ctggccacaa gttcttcctt ccattgtccc ttttctttat 1980

ccctgacctc tctgagaagt ggggtgtggt ctctcagctg ttctgccctc ataccttaa 2040

agggccagcc tgggcccagt ggacacaggt aaggcaccat gaccacctgg tgtgacctct 2100

ctgtgcctta ctgaggcacc tttctagaga ttaaaagggg cttgatggct gttaaaaaaa 2160

aaaaaaaaaa a 2171

<210> 56
<211> 2175
<212> DNA
<213> Homo sapiens

<400> 56
agcagctctg taatgcgctt gtggtttcag atgtgggcgg cctgtgtgaa cctgtcgtgc 60

aaagctcacg tcaccaactg ctgcagttat ctcctgaatc aggctgaggg tctttgctgt 120

gcacccagag atagttgggt gacaaatcac ctccaggttg gggatgcctc agacttgtga 180

tgggactggg cagatgcatc tgggaagtaa ctgctgcaag aacggacaga cactgctgca 240

gagaacttgc cacggtgttt catgctgtgg ctggtggttc aggctgcac gctccattct 300

aggaaagggg ccctcagccc agtcccttgc aggctggacc ttggagagtg aggccctgag 360

gcgagacatg ggcacctggc tcctggcctg catctgcatc tgcacctgtg tctgcttggg 420

agtctctgtc acaggggaag gacaagggcc aaggtctaga accttcacct gcctcaccaa 480

caacattctc aggatcgatt gccactggtc tgccccagag ctgggacagg gctccagccc 540

ctggctcctc ttcaccaggc tcctggcggc acacataagt gcatcttgcg gggcagtgag 600

tgcaccgtcg tgctgccacc tgaggcagtg ctcgtgccat ctgacaattt caccatcact 660

ttccaccact gcatgtctgg gagggagcag gtcagcctgg tggacccgga gtacctgccc 720

cggagacacg agcaacatca gttctggcca ctgcatcctg acctggagca tcagtcctgc 780

cttggagcca atgaccacac ttctcagcta tgagctggcc ttcaagaagc aggaagaggc 840

ctgggagcag gcccagcaca gggatcacat tgtcggggtg acctggctta tacttgaagc 900

ctttgagctg gaccctggct ttatccatga ggccaggctg cgtgtccaga tggccacact 960

ggaggatgat gtggtagagg aggagcgtta tacaggccag tggagtgagt ggagccagcc 1020

tgtgtgcttc caggctcccc agagacaagg ccctctgatc ccaccctggg ggtggccagg 1080

caacaccctt gttgctgtgt ccatctttct cctgctgact ggcccgacct acctcctgtt 1140

caagctgtcg cccagacttg gatgggggcc cacggggccg gtgtgctgtt gagccaggac 1200

tgtgctggca ccccacaggg agccttggag ccctgcgtcc aggaggccac tgcactgctc 1260

acttgtggcc cagcgcgtcc ttggaaatct gtggccctgg aggaggaaca ggagggccct 1320

gggaccaggc tcccggggaa cctgagctca gaggatgtgc tgccagcagg gtgtacggag 1380

tggagggtac agacgcttgc ctatctgcca caggaggact gggcccccac gtccctgact 1440

aggccggctc ccccagactc agagggcagc aggagcagca gcagcagcag cagcagcaac 1500

aacaacaact actgtgcctt gggctgctat gggggatggc acctctcagc cctcccagga 1560

aacacacaga gctctgggcc catcccagcc ctggcctgtg gcctttcttg tgaccatcag 1620

ggcctggaga cccagcaagg agttgcctgg gtgctggctg gtcactgcca gaggcctggg 1680

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ggagcagcct ctaccctcag catcctggcc acaagttctt ccttccattg tccctttttct 1980

ttatccctga cctctctgag aagtggggtg tggtctctca gctgttctgc cctcataccc 2040

ttaaagggcc agcctgggcc cagtggacac aggtaaggca ccatgaccac ctggtgtgac 2100

ctctctgtgc cttactgagg caccttttcta gagattaaaa ggggcttgat ggctgttaaa 2160

aaaaaaaaaa aaaaa 2175

<210> 57
<211> 1451
<212> DNA
<213> Homo sapiens

<400> 57
gaagagcaag cgccatgttg aagccatcat taccattcac atccctctta ttcctgcagc 60

tgcccctgct gggagtgggg ctgaacacga caattctgac gcccaatggg aatgaagaca 120

ccacagctga tttcttcctg accactatgc ccactgactc cctcagtgtt tccactctgc 180

ccctcccaga ggttcagtgt tttgtgttca atgtcgagta catgaattgc acttggaaca 240

gcagctctga gccccagcct accaacctca ctctgcatta ttggtacaag aactcggata 300

atgataaagt ccagaagtgc agccactatc tattctctga agaaatcact tctggctgtc 360

agttgcaaaa aaaggagatc cacctctacc aaacatttgt tgttcagctc caggacccac 420

gggaacccag gagacaggcc acacagatgc taaaactgca gaatctggtg atcccctggg 480

ctccagagaa cctaacactt cacaaactga gtgaatccca gctagaactg aactggaaca 540

acagattctt gaaccactgt ttggagcact tggtgcagta ccggactgac tgggaccaca 600

gctggactga acaatcagtg gattatagac ataagttctc cttgcctagt gtggatgggc 660

agaaacgcta cacgtttcgt gttcggagcc gctttaaccc actctgtgga agtgctcagc 720

attggagtga atggagccac ccaatccact gggggagcaa tacttcaaaa gagaatcctt 780

tcctgtttgc attggaagcc gtggttatct ctgttggctc catgggattg attatcagcc 840

ttctctgtgt gtatttctgg ctggaacgga cgatgccccg aattcccacc ctgaagaacc 900

tagaggatct tgttactgaa taccacggga acttttcggc ctggagtggt gtgtctaagg 960

gactggctga gagtctgcag ccagactaca gtgaacgact ctgcctcgtc agtgagattc 1020

ccccaaaagg aggggccctt ggggaggggc ctggggcctc cccatgcaac cagcatagcc 1080

cctactgggc ccccccatgt tacaccctaa agcctgaaac ctgaacccca atcctctgac 1140

agaagaaccc cagggtcctg tagccctaag tggtactaac tttccttcat tcaacccacc 1200

tgcgtctcat actcacctca ccccactgtg gctgatttgg aattttgtgc ccccatgtaa 1260

gcacccccttc atttggcatt ccccacttga gaattaccct tttgccccga acatgttttt 1320

cttctccctc agtctggccc ttccttttcg caggattctt cctccctccc tctttccctc 1380

ccttcctctt tccatctacc ctccgattgt tcctgaaccg atgagaaata aagtttctgt 1440

tgataatcat c 1451

<210> 58
<211> 521
<212> PRT
<213> Homo sapiens

<400> 58

Met Gly Leu Gly Arg Cys Ile Trp Glu Gly Trp Thr Leu Glu Ser Glu
1 5 10 15

Ala Leu Arg Arg Asp Met Gly Thr Trp Leu Leu Ala Cys Ile Cys Ile
20 25 30

Cys Thr Cys Val Cys Leu Gly Val Ser Val Thr Gly Glu Gly Gln Gly
35 40 45

Pro Arg Ser Arg Thr Phe Thr Cys Leu Thr Asn Asn Ile Leu Arg Ile
50 55 60

Asp Cys His Trp Ser Ala Pro Glu Leu Gly Gln Gly Ser Ser Pro Trp
65 70 75 80

Leu Leu Phe Thr Ser Asn Gln Ala Pro Gly Gly Thr His Lys Cys Ile
85 90 95

Leu Arg Gly Ser Glu Cys Thr Val Val Leu Pro Pro Glu Ala Val Leu
100 105 110

Val Pro Ser Asp Asn Phe Thr Ile Thr Phe His His Cys Met Ser Gly
115 120 125

Arg Glu Gln Val Ser Leu Val Asp Pro Glu Tyr Leu Pro Arg Arg His
130 135 140

```
Val Lys Leu Asp Pro Pro Ser Asp Leu Gln Ser Asn Ile Ser Ser Gly
145                 150                 155                 160

His Cys Ile Leu Thr Trp Ser Ile Ser Pro Ala Leu Glu Pro Met Thr
                165                 170                 175

Thr Leu Leu Ser Tyr Glu Leu Ala Phe Lys Lys Gln Glu Glu Ala Trp
            180                 185                 190

Glu Gln Ala Gln His Arg Asp His Ile Val Gly Val Thr Trp Leu Ile
        195                 200                 205

Leu Glu Ala Phe Glu Leu Asp Pro Gly Phe Ile His Glu Ala Arg Leu
    210                 215                 220

Arg Val Gln Met Ala Thr Leu Glu Asp Asp Val Val Glu Glu Glu Arg
225                 230                 235                 240

Tyr Thr Gly Gln Trp Ser Glu Trp Ser Gln Pro Val Cys Phe Gln Ala
                245                 250                 255

Pro Gln Arg Gln Gly Pro Leu Ile Pro Pro Trp Gly Trp Pro Gly Asn
            260                 265                 270

Thr Leu Val Ala Val Ser Ile Phe Leu Leu Leu Thr Gly Pro Thr Tyr
        275                 280                 285

Leu Leu Phe Lys Leu Ser Pro Arg Val Lys Arg Ile Phe Tyr Gln Asn
    290                 295                 300

Val Pro Ser Pro Ala Met Phe Phe Gln Pro Leu Tyr Ser Val His Asn
305                 310                 315                 320

Gly Asn Phe Gln Thr Trp Met Gly Ala His Gly Ala Gly Val Leu Leu
                325                 330                 335

Ser Gln Asp Cys Ala Gly Thr Pro Gln Gly Ala Leu Glu Pro Cys Val
            340                 345                 350

Gln Glu Ala Thr Ala Leu Leu Thr Cys Gly Pro Ala Arg Pro Trp Lys
        355                 360                 365

Ser Val Ala Leu Glu Glu Glu Gln Glu Gly Pro Gly Thr Arg Leu Pro
    370                 375                 380

Gly Asn Leu Ser Ser Glu Asp Val Leu Pro Ala Gly Cys Thr Glu Trp
```

385 390 395 400

Arg Val Gln Thr Leu Ala Tyr Leu Pro Gln Glu Asp Trp Ala Pro Thr
405 410 415

Ser Leu Thr Arg Pro Ala Pro Pro Asp Ser Glu Gly Ser Arg Ser Ser
420 425 430

Ser Ser Ser Ser Ser Ser Asn Asn Asn Asn Tyr Cys Ala Leu Gly Cys
435 440 445

Tyr Gly Gly Trp His Leu Ser Ala Leu Pro Gly Asn Thr Gln Ser Ser
450 455 460

Gly Pro Ile Pro Ala Leu Ala Cys Gly Leu Ser Cys Asp His Gln Gly
465 470 475 480

Leu Glu Thr Gln Gln Gly Val Ala Trp Val Leu Ala Gly His Cys Gln
485 490 495

Arg Pro Gly Leu His Glu Asp Leu Gln Gly Met Leu Leu Pro Ser Val
500 505 510

Leu Ser Lys Ala Arg Ser Trp Thr Phe
515 520

<210> 59
<211> 332
<212> PRT
<213> Homo sapiens

<400> 59

Met His Leu Gly Ser Asn Cys Cys Lys Asn Gly Gln Thr Leu Leu Gln
1 5 10 15

Arg Thr Cys His Gly Val Ser Cys Cys Gly Trp Trp Phe Gln Ala Ala
20 25 30

Arg Ser Ile Leu Gly Lys Gly Pro Ser Ala Gln Ser Leu Ala Gly Trp
35 40 45

Thr Leu Glu Ser Glu Ala Leu Arg Arg Asp Met Gly Thr Trp Leu Leu
50 55 60

Ala Cys Ile Cys Ile Cys Thr Cys Val Cys Leu Gly Val Ser Val Thr
65 70 75 80

```
Gly Glu Gly Gln Gly Pro Arg Ser Arg Thr Phe Thr Cys Leu Thr Asn
                85                  90                  95

Asn Ile Leu Arg Ile Asp Cys His Trp Ser Ala Pro Glu Leu Gly Gln
            100                 105                 110

Gly Ser Ser Pro Trp Leu Leu Phe Thr Arg Leu Leu Ala Ala His Ile
        115                 120                 125

Ser Ala Ser Cys Gly Ala Val Ser Ala Pro Ser Cys Cys His Leu Arg
    130                 135                 140

Gln Cys Ser Cys His Leu Thr Ile Ser Pro Ser Leu Ser Thr Thr Ala
145                 150                 155                 160

Cys Leu Gly Gly Ser Arg Ser Ala Trp Trp Thr Arg Ser Thr Cys Pro
                165                 170                 175

Gly Asp Thr Ser Asn Ile Ser Ser Gly His Cys Ile Leu Thr Trp Ser
            180                 185                 190

Ile Ser Pro Ala Leu Glu Pro Met Thr Thr Leu Leu Ser Tyr Glu Leu
        195                 200                 205

Ala Phe Lys Lys Gln Glu Glu Ala Trp Glu Gln Ala Gln His Arg Asp
    210                 215                 220

His Ile Val Gly Val Thr Trp Leu Ile Leu Glu Ala Phe Glu Leu Asp
225                 230                 235                 240

Pro Gly Phe Ile His Glu Ala Arg Leu Arg Val Gln Met Ala Thr Leu
                245                 250                 255

Glu Asp Asp Val Val Glu Glu Glu Arg Tyr Thr Gly Gln Trp Ser Glu
            260                 265                 270

Trp Ser Gln Pro Val Cys Phe Gln Ala Pro Gln Arg Gln Gly Pro Leu
        275                 280                 285

Ile Pro Pro Trp Gly Trp Pro Gly Asn Thr Leu Val Ala Val Ser Ile
    290                 295                 300

Phe Leu Leu Leu Thr Gly Pro Thr Tyr Leu Leu Phe Lys Leu Ser Pro
305                 310                 315                 320
```

```
Arg Leu Gly Trp Gly Pro Thr Gly Pro Val Cys Cys
                325                 330


<210>  60
<211>  369
<212>  PRT
<213>  Homo sapiens

<400>  60

Met Leu Lys Pro Ser Leu Pro Phe Thr Ser Leu Leu Phe Leu Gln Leu
1               5                   10                  15


Pro Leu Leu Gly Val Gly Leu Asn Thr Thr Ile Leu Thr Pro Asn Gly
            20                  25                  30


Asn Glu Asp Thr Thr Ala Asp Phe Phe Leu Thr Thr Met Pro Thr Asp
        35                  40                  45


Ser Leu Ser Val Ser Thr Leu Pro Leu Pro Glu Val Gln Cys Phe Val
    50                  55                  60


Phe Asn Val Glu Tyr Met Asn Cys Thr Trp Asn Ser Ser Ser Glu Pro
65                  70                  75                  80


Gln Pro Thr Asn Leu Thr Leu His Tyr Trp Tyr Lys Asn Ser Asp Asn
                85                  90                  95


Asp Lys Val Gln Lys Cys Ser His Tyr Leu Phe Ser Glu Glu Ile Thr
            100                 105                 110


Ser Gly Cys Gln Leu Gln Lys Lys Glu Ile His Leu Tyr Gln Thr Phe
        115                 120                 125


Val Val Gln Leu Gln Asp Pro Arg Glu Pro Arg Arg Gln Ala Thr Gln
    130                 135                 140


Met Leu Lys Leu Gln Asn Leu Val Ile Pro Trp Ala Pro Glu Asn Leu
145                 150                 155                 160


Thr Leu His Lys Leu Ser Glu Ser Gln Leu Glu Leu Asn Trp Asn Asn
                165                 170                 175


Arg Phe Leu Asn His Cys Leu Glu His Leu Val Gln Tyr Arg Thr Asp
            180                 185                 190


Trp Asp His Ser Trp Thr Glu Gln Ser Val Asp Tyr Arg His Lys Phe
        195                 200                 205
```

```
Ser Leu Pro Ser Val Asp Gly Gln Lys Arg Tyr Thr Phe Arg Val Arg
    210                 215                 220

Ser Arg Phe Asn Pro Leu Cys Gly Ser Ala Gln His Trp Ser Glu Trp
225                 230                 235                 240

Ser His Pro Ile His Trp Gly Ser Asn Thr Ser Lys Glu Asn Pro Phe
                245                 250                 255

Leu Phe Ala Leu Glu Ala Val Val Ile Ser Val Gly Ser Met Gly Leu
            260                 265                 270

Ile Ile Ser Leu Leu Cys Val Tyr Phe Trp Leu Glu Arg Thr Met Pro
        275                 280                 285

Arg Ile Pro Thr Leu Lys Asn Leu Glu Asp Leu Val Thr Glu Tyr His
    290                 295                 300

Gly Asn Phe Ser Ala Trp Ser Gly Val Ser Lys Gly Leu Ala Glu Ser
305                 310                 315                 320

Leu Gln Pro Asp Tyr Ser Glu Arg Leu Cys Leu Val Ser Glu Ile Pro
                325                 330                 335

Pro Lys Gly Gly Ala Leu Gly Glu Gly Pro Gly Ala Ser Pro Cys Asn
            340                 345                 350

Gln His Ser Pro Tyr Trp Ala Pro Pro Cys Tyr Thr Leu Lys Pro Glu
        355                 360                 365

Thr
```